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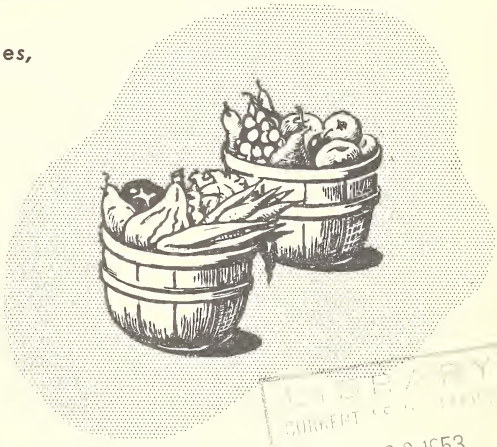
PRODUCE DEPARTMENT

Space Utilization, Gross Margins, and Operating Costs

in Selected Retail Stores, Charlotte, N. C.



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Marketing Research Report No. 36

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

Washington, D. C. June 1953

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The data were collected by Alderson and Sessions under contract as authorized by the Agricultural Marketing Act of 1946 (RMA, Title II). This Act authorizes research "to determine costs of marketing agricultural products in their various forms and through the various channels and to foster and assist in the development and establishment of more efficient marketing methods . . . for the purpose of bringing about more efficient and orderly marketing and reducing the price spread between the producer and the consumer."

PRODUCE DEPARTMENT SPACE UTILIZATION, GROSS MARGINS, AND OPERATING COSTS IN SELECTED RETAIL STORES IN CHARLOTTE, N. C. JANUARY 22-MAY 19, 1951

Data collected by Alderson and Sessions
under contract as authorized by
The Agricultural Marketing Act of 1946, (RMA, Title II)
Prepared for publication by H. Wayne Bitting
Bureau of Agricultural Economics

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INTRODUCTION

Producers have often argued that retail margins for specific commodities should be directly related to their costs of handling. But many retailers and wholesalers contend that it is meaningless to talk about the margin for any one product or for a department on the basis of costs of individual

commodities, because pricing policies must be based upon net returns from the sale of all the commodities they handle. Research workers generally agree that in relating retail margins to costs of handling consideration must be given to the overall operations of the store.

The present report covers the pilot phase of a larger study made in Charlotte, N.C. The data obtained on marketing margins and trade practices for the more important fresh fruits and vegetables corresponds to the information obtained in Denver, Colo., Pittsburgh, Pa., and Cleveland, Ohio. These studies were undertaken as one step in the process of learning how to increase efficiency in marketing of farm products - which would benefit farmers, retailers, and consumers.

The pilot phase of the study reported here examines the following relationships: (1) The extent to which the allocation of floor space among departments is related to gross profits per square foot of display areas, (2) the extent to which pricing practices relate differences in margins for selected fresh fruits and vegetables to differences in operating costs, volume of sales, and spoilage, and (3) the differences in cost of labor among size groups of stores.

Data for the produce, grocery, and meat departments in 20 sample stores were obtained for the calendar-year 1950. Detailed records were collected in the sample stores for potatoes, sweetpotatoes, carrots, onions, head lettuce, tomatoes, cabbage, apples, oranges, and grapefruit, covering the 17 weeks from January 22 through May 19, 1951. The stores were sampled to be representative of four size groups with gross sales of more than $35,000 a year. Also, the stores were selected to be representative of the principal residential sections of the city.

SUMMARY

The findings showed that stores doing the larger volume of business had roughly twice the dollar sales per square foot of floor space in the grocery and meat departments that the smaller stores had. This was not the case for fresh produce. Sales of produce in the smaller stores were high relative to sales of groceries and meats.

Gross profits per square foot of floor space for fresh produce in the stores with total sales under $300,000 a year (groups II, III, and IV) were from 3.5 to 6.9 times those in the grocery departments. In the larger stores (group I) gross profits from sales of produce were 2.3 times those from sales of groceries. A relatively greater proportion of the floor space of the largest stores was devoted to produce. This suggests that the smaller stores should try to increase their profits by shifting space from groceries to produce. Each store would need to experiment in order to learn the net effect of such changes upon its over-all sales and profits.

Individual stores followed no consistent pricing practices in terms of percentage or absolute margins. Lack of consistency in margins apparently arose from the fact that Charlotte retailers tend to maintain a stable selling price for a period of time rather than immediately reflecting upward or downward changes in the prices they pay. This suggests the need to study the effect of such pricing practices upon relative sales and profits for the various commodities. In turn, these findings would need to be evaluated in light of their effects upon overall store profits and sales.

The differences in retail margins among the 10 produce items could not be explained on the basis of differences in total sales, spoilage, and operating costs. Eastern apples, for example, carried an average retail margin of 31 percent. Oranges averaged 25 percent and lettuce and carrots 23 percent. These differences in margins were unrelated to the difference in volume of sales, spoilage, and operating costs.

From the pricing practices observed in Charlotte, apparently retailers look upon their store operations as a unit and pay little attention to the possible effects of margins of individual commodities upon the relative sales and profits of particular items.

The cost of labor usually accounted for more than 60 percent of the operating expenses in produce departments of the sample stores. Approximately 56 percent of the total cost of labor was incurred before the consumer selected the produce.

The largest stores made better use of their labor in terms of pounds sold per man-hour. They also paid higher wage rates. However, the higher wage rates paid in these stores were more than offset by the greater productivity of labor.

In terms of dollar sales per dollar of labor cost, there were no significant differences between the four size groups of stores. The advantages which the largest stores (more than $300,000) enjoyed in terms of greater physical productivity of labor were offset by the lower selling prices per pound of produce sold. This is owing to either or both of two factors: (1) The larger stores may have sold their produce for lower prices, (2) the larger stores may have sold a greater proportion of the heavy-weight, low-priced produce (potatoes, for example).

ALLOCATION OF FLOOR SPACE

Money spent on floor space is partly wasted unless a floor plan that will provide a maximum effective display is used, and unless proper allocations of space are made to meat, groceries, and produce. The better stores

are designed and continually remodeled to keep pace with the newest ideas as to attractive meat, grocery, and produce displays. The use to which a retailer puts his space is reflected in the profits he obtains.

How to make the best use of space is a major problem in a modern retail market. To a self-service grocer, this is particularly important. His store is set up on the theory that goods are sold by displaying them. Self-service is now nearly universal in food retailing. All of the stores studied in Charlotte were fundamentally self-service stores, although a few extended delivery service on a portion of their sales. The aim in allocating space within the selling area is to maximize the productivity of the entire display area by causing each square foot to make its proper contribution.

Principles of Space Allocation

A knowledge of the principles of space allocation is necessary before structure and allocation in the test stores can be discussed. Considered here are the criteria for the most effective allocation of space.

Several measures of productivity of space may be considered. Among those that can be expressed on a square-foot basis are net profit, gross profit, sales in terms of dollars, and sales in terms of quantities sold. Although net profit represents the desired measure, data as to net profits were not available. Data on quantity sold take no account of return to the store. Gross profits or margins were not available for items other than the 10 produce items studied. These 10 commodities are potatoes, sweetpotatoes, carrots, onions, head lettuce, tomatoes, cabbage, apples, oranges, and grapefruit. Dollar sales per square foot of floor space were the only dollar measure available for the grocery, produce, and meat departments.

In order to obtain the greatest possible over-all returns for a store, returns from the last square foot of space added to the produce department should be approximately equal to the returns from the last square foot of space added to the grocery and meat departments. Otherwise, it would pay to shift the use of space from the department yielding the lowest to the department yielding the highest returns. This relationship is based upon net profit expressed on a square-foot basis. When gross profit instead of net profit is used as a measure of space productivity, some adjustments probably are necessary to allow for those commodities for which operating costs are relatively higher. If operating costs were approximately the same for all commodities, it would matter little whether gross or net profits were used as a measure of productivity. Dollar sales per square foot of floor space are one step farther removed from net profits than is gross profit. This is because dollar sales must be adjusted for variation in both commodity margins and operating costs. However, under certain conditions, use of sales per square foot

would lead to the same conclusions as gross profit per square foot. When gross margins are roughly the same among commodities and when operating costs vary little among commodities, maximizing sales volume in dollars would result in maximizing both net and gross profit.

Space Productivity in the Sample Stores

Sales in produce departments accounted for 13 to 24 percent of total sales during the calendar-year 1950 for the four groups of stores (fig. 1). 1/ The selling space allocated to produce ranged from 10 to 13 percent of the total selling area. In contrast, groceries were allocated about 71 percent of the selling space but they accounted for only 43 to 58 percent of the total sales. Meats received 16 to 21 percent of the selling space and accounted for 29 to 33 percent of total sales. Both produce and meats accounted for a larger proportion of sales than they did of the total selling space allocated to them. An implication of the relatively low sales of groceries in relation to selling space is that display space is used as storage for dry groceries to a greater extent than is the case for meats and produce.

To permit a more meaningful comparison among departments, dollar sales were expressed in terms of sales per square foot of floor space. This made it possible to compare stores of different sizes by using a common denominator. The larger stores had relatively larger areas devoted to produce and their dollar sales per square foot of floor space exceeded those in the smaller stores. However, dollar sales per square foot of floor space do not provide the desired measure of productivity of space based upon net profits. In order to achieve this objective, two additional factors - gross margins and operating costs - must be considered.

1/ Group I represents those stores having more than $300,000 worth of sales during 1950; group II, $150,000-$299,999; group III, $100,000-$149,999; and group IV less than $100,000.

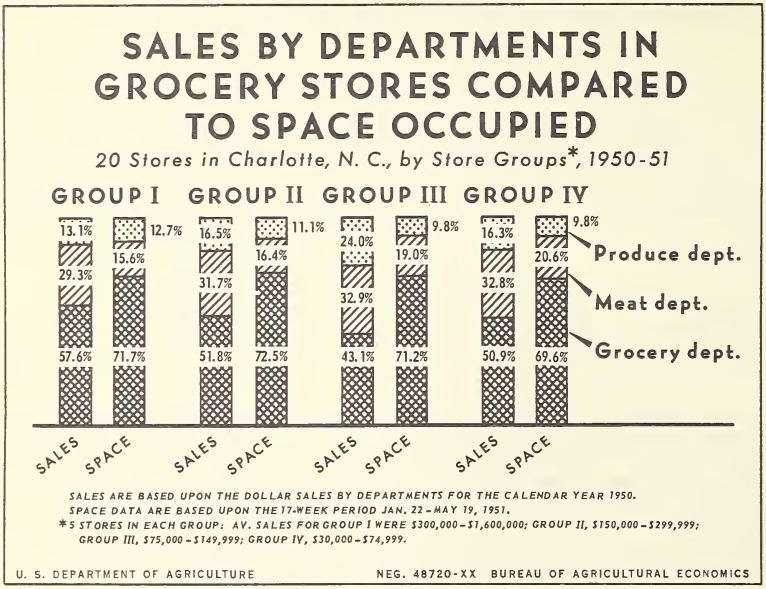

Figure 1.

Records maintained by the stores in Charlotte were not adequate to calculate gross margins by departments. However, a study made about the same time by the Progressive Grocer, which covered 7 supermarkets in Providence, R. I., reports gross margins of 26.85 percent for the produce department, 15.46 percent for groceries, and 19.02 percent for meats. 2/ The produce margin of 26.85 percent found in the Providence study is close to the 27.8 percent gross margin found for the 10 fresh fruits and vegetables in the Charlotte study. Assuming that the average gross margin for the 10 fruits and vegetables is typical of the entire produce department (these items probably represent more than 50 percent of the

2/ Progressive Grocer. Report on a Study of Sales and Margins by Commodities, made in the Providence Public Markets, Providence, R. I., Oct.-Dec. 1950. The 19.02 percent for the Meat Department includes the figures for dairy products in the Providence study. The 15.46 percent for the Grocery Department includes figures for Frozen Foods.

total produce sales), 3/ it appears likely that the gross margins by departments found in the Progressive Grocer study would be applicable to the Charlotte stores. A recent study by the Super Market Institute revealed similar gross margins. 4/ A study of meat margins in Chicago from 1947 to 1951 showed no significant differences in meat margins among stores of different sizes (sales ranged from 1,000 pounds a week to 13,000 pounds) during any year from 1947 to 1951. The average margin for all stores ranged from 19.6 percent in 1948 to 22.8 percent in 1949. 5/

Dollar sales and gross profits per square foot of floor space are shown for produce, grocery, and meat departments in table 1. These data are shown separately for each of the four groups of stores.

So far as productivity of total store area is concerned, a sharp break occurs between the first two groups and the last two. This table indicates that the Charlotte stores which had a gross annual sales volume of $150,000 and over had around $100 of sales per square foot of selling space. The table also shows that the productivity of space in smaller stores was about half that amount. However, it must be pointed out that the very small stores were excluded from the study and that for no store in the fourth group were annual sales less than $30,000. At the other extreme, three stores in the first group had sales totaling more than a half million dollars.

3/ M. P. Rasmussen and W. B. Hinkle, in Consumer Purchases of Fresh Fruits and Vegetables, showed dollar sales by individual items for the produce department for July 1946-June 1947, July 1947-June 1948, and July 1948-June 1949 for three retail food stores in Syracuse, N.Y. During these years, the 10 fresh fruits and vegetables included in the Charlotte study represented 54, 54, and 57 percent, respectively, of total dollar sales of produce in these stores.

4/ A report published by Super Market Institute, Inc. entitled "The Super Market Industry Speaks -- 1951," contains the following tabulation:

Department	Companies reporting	Typical	Three-fourths range
	Number	Percent	Percent
All departments	166	17.2	14.9 - 20.2
Grocery 1/	200	15.0	12.5 - 17.6
Meat	201	19.1	16.1 - 22.7
Produce	192	24.8	20.8 - 29.6

1/ "Grocery department" as shown above includes many low mark-up items such as soap and should not be confused with "grocery department" controlled under Ceiling Price Regulations 15 and 16.

5/ "Retail Meat Margins and Costs in Chicago, 1947-1951." (Unpublished).

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Table 1. - Total sales and gross profit per square foot of selling space for produce, groceries, and meats, 20 stores, by store size group, Charlotte, N. C., 1950 1/

Store group 2/	Stores	Grocery		Meats		Produce		All departments	
		Total sales	Gross profit 3/	Total sales	Gross profit 3/	Total sales	Gross profit 3/	Total sales	Gross profit 3/
	Number	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
I....	5	82	12.68	190	36.14	107	28.73	101	18.41
II...	5	75	11.60	177	33.67	153	41.08	99	18.05
III..	5	32	4.95	90	17.12	128	34.37	48	8.75
IV...	5	37	5.72	82	15.60	95	25.51	49	8.93

1/ Frozen foods are included with groceries; dairy products are included with meats.

2/ Stores were grouped according to dollar volume of sales during 1950. Group I represents those stores having more than $300,000; group II $150,000-$299,999; group III $100,000-$149,999; group IV under $100,000.

3/ Obtained by applying the gross profit margins of 15.46 percent for groceries, 19.02 percent for meats, and 26.85 percent for produce. These margins are given in Progressive Grocer, Report on a Study of Sales and Margins by Commodities, Made in the Providence Public Markets, Providence, R. I. Oct.-Dec. 1950. These percentages include dairy products in the meat department and frozen foods in the grocery department.

Gross profits per square foot of floor space in both the produce and meat departments exceeded those in groceries. In the case of meats, gross profits per square foot were roughly three times the gross profit in the grocery department for all four groups of stores (table 2).

Table 2. - Ratio of gross profit per square foot of selling area of meat and produce to grocery department, 20 stores, Charlotte, N.C., 1950

Department	Store group 1/			
	I	II	III	IV
Grocery	1.0	1.0	1.0	1.0
Meats	2.8	2.9	3.5	2.7
Produce	2.3	3.5	6.9	4.5

1/ Stores were grouped according to dollar volume of sales during 1950. Group I represents those stores having more than $300,000; Group II, $150,000-$299,999; Group III $100,000-$149,999; Group IV under $100,000.

Gross profits for produce were from 2.3 to 6.9 times gross profits in the grocery department. Stores with total sales of less than $300,000 a year (groups II, III, and IV) had gross profits per square foot of floor space in the produce department from 3.5 to 6.9 times those in the grocery department. Gross profits in the produce departments of the larger stores (group I) exceeded those in the grocery departments only 2.3 to 1. The larger stores, with their relatively larger proportion of floor space devoted to produce, had greater gross profits per square foot of floor space for the overall store operation.

The larger ratios of gross profits for the produce departments in the smaller stores suggest the possibility of increasing profits in these stores by shifting space from groceries to produce. In order to ascertain whether this would increase net profits, consideration must be given to the differences in operating costs between groceries and produce. M. P. Rasmussen and W. B. Hinkle in studying retail food stores in Syracuse, N.Y., found that labor costs for produce were roughly twice those for groceries in both corporate chains and independent grocery stores. 6/ Gross profits for produce exceeded those for groceries by more than 2 to 1, especially in the groups of smaller stores. In addition to considering differences in operating costs between grocery and produce departments, it would be necessary to learn the effects on total store sales of expanding the display area for specific items of produce as well as the effect of adding additional items. This would call for experimentation by each store to find out the net effect of such changes upon its overall sales and profits. The Charlotte data do not permit such a determination, as gross profits are expressed in terms of averages rather than marginal terms and profits were calculated as gross rather than net profits.

Management of Space in Produce Departments

Since display is of particular importance for produce, the use of space for display of 10 leading items of produce was examined in detail. Appendix table 10 shows sales per square foot of display space for each of these 10 items for the 20 stores arranged in order of total volume of sales for the store. These figures reflect some general tendencies in management of space.

Considering the 10 items as a group, productivity of space scales down steadily from the large to the small stores (Appendix table 10). But the drop in sales per square foot is not nearly so great as the drop in total volume of sales of the stores. Thus the second store has a volume of sales that is nearly 40 times as great as that of the 20th store but sales per square foot are not quite 5 times as great as those

6/ Annual Report for (Cooperative Regional Projects provided for under Sections 9b3, 10b, and 11, Research and Marketing Act.) Project: NEM-2, Regional Research in Marketing and Distribution of Fruit, from Harvesting to Consumer, Including Processing of Fruits and Their Products.

in the smaller stores. Some irregularities in the general trend from large to small stores were noted in the relationship of volume of sales and productivity of space for individual stores. For example, for special reasons, stores H and J rank immediately after store A in sales per square foot. Apparently neither store had adequate space to serve its customers, either in the produce department or in other departments.

Comparing the 10 produce items as to productivity of space, striking contrasts become apparent. Potatoes and onions have low rates of sale per square foot. These rates are lower than average in all four groups of stores. In fact, onions show a lower than average rate in every store and potatoes in every store except E. In contrast to these two items, dollar sales per square foot of floor space for tomatoes and lettuce are above average. This is true for both products for the four groups of stores. By individual stores, the only exceptions are in store U for tomatoes and store T for lettuce.

Potatoes and onions are the most staple among the 10 items and their sales are probably least responsive to display. Tomatoes and lettuce are highly perishable and are probably among those items that are most responsive to display. However, the effect of size of purchase and relative prices of the products must be considered before it is concluded that space should be shifted from potatoes and onions to lettuce and tomatoes. High-value nonbulky items may require less space than bulky low-value items, particularly if sales are not increased in proportion to display area. When bulky low-value items are sold in larger purchase units - for example, 10 pounds of potatoes - it might be advantageous from the standpoint of efficient use of labor, as well as in the interest of maintaining supplies readily available to consumers, to allocate additional space to potatoes and onions beyond that indicated on the basis of dollar sales per square foot of floor space. Additional information is needed to evaluate these factors.

The present practice in allocating space to produce items is probably tied up with the way the retailer buys, rather than with any real requirements on the merchandising side. Potatoes and onions, which are not highly perishable, are bought in fairly large quantities. They are then allowed to take up a large part of the display space to minimize movement into and out of storage space in the rear of the store. More frequent deliveries of lettuce and tomatoes are received and the custom has been to pile up the limited stock on hand as with the less perishable products.

Appendix tables 11 and 12 show the percentage of total sales for each of the 10 items and the percentage of space each occupies. Using comparisons drawn from these tables, it is found that the space allocated to these four items is out of proportion to the percentage of sales accounted for by each. Potatoes and tomatoes are about on a par so far as dollar volume of sales is concerned. Yet, on the average, potatoes occupy about four times as much space. A still more striking difference is found between tomatoes and onions. The space allocated to onions is substantially greater on the average than the space allocated to tomatoes. Yet tomatoes outsell onions more than four to one. Lettuce fares just about the same as tomatoes in allocation of space.

The 6 remaining products (sweetpotatoes, carrots, cabbage, apples, oranges, and grapefruit), were closer to the average in sales per square foot of floor space. That means that the percentage of space given to each of these products was roughly proportional to their relative sales position among the 10 products. In fact, the parallel between sales and space allocated is remarkably close for all 6 products if only the averages for the four groups of stores are considered. Many irregularities were found among individual stores.

For example, store E had lower sales of grapefruit per square foot of space than any other store among the first 10 stores. This was not because store E gave unduly more space to grapefruit than other stores in its size group. Appendix table 12 shows that store E gave about the average amount of space to grapefruit. The explanation is found in Appendix table 11. Sales of grapefruit by store E were low in relation to those of other stores in its size group. However, this store bought grapefruit in large quantities and unusually high spoilage was observed.

These findings indicate the need for keeping records on individual items so that the returns per square foot of floor space may be known. Such information will enable the store manager to allocate space more efficiently. Lack of relationship between total sales and allocation of space among produce items appeared to exist for each of the four groups of stores.

PRICING PRACTICES

In general, well-defined limits govern the level of mark-ups that a grocer can add to the purchase price of his merchandise as a whole. The lower limit is the one that will yield enough dollars of gross profit to cover his operating costs. The upper limit is the one that will give him the largest net profit above his operating expenses that competition will allow him to collect. A prudent retailer tries to locate a point

of balance somewhere between these limits. He does not set the highest possible prices today because he is interested in maintaining or expanding his volume in order to continue to earn a profit tomorrow and the day after. He does not set his prices merely to recover operating expenses, unless he is trying to gain a foothold in what he assumes will become a profitable field later.

Markup on Cost

Idaho potatoes and head lettuce were selected to illustrate the pricing practices used by the retail stores in the Charlotte study. Figure 2 shows the markup on cost taken by the 20 sample stores from January 22 to February 13, 1951. The percentage markup on cost shown in this figure is not the same as the retail margin. The retail margin represents the markup as a percentage of selling price rather than a markup on cost. Each dot shown in figure 2 represents the percentage markup on purchase price taken by individual stores for each lot of potatoes and head lettuce bought by the 20 stores from January 22 to February 13, 1952. No allowance has been made for spoilage. The percentage mark-up ranged from 7 to 130 percent for Idaho potatoes and from 7 to 103 percent for head lettuce. Markups on individual lots of potatoes varied considerably when commodity costs were identical. For head lettuce the variation in mark-up was not so great. The larger percentage mark-ups tended to be taken on those lots having lower purchase prices. This was especially noticeable for head lettuce.

Because of the extreme range in markups occurring in a relatively short time, in those instances where the markups were extremely low they were not adequate to cover retail handling costs. In stores with the highest markups, retail sales probably would have been increased had the markup been reduced. Variation in quality may have accounted for some of the differences in markup between lots. However, reliable data as to quality were not available.

Retail Margins by Individual Stores

The pattern of retail markup illustrated in figure 2 suggested that the higher markups might have been confined largely to certain stores and that perhaps each store tended to follow a consistent pricing policy. However, apparently this was not the case. To test this, it was necessary to examine the margins for each lot of each commodity bought and sold by the individual stores during the study. These data showed that individual stores apparently followed no consistent pricing pattern. Both high and low margins for each commodity were found in the data relative to individual stores. This is illustrated by figures 3 to 6. (Each bar in figures 3 to 6 represents an individual lot or lots on sale in a retail store with a common selling price and cost price per pound, head, or bunch. The number of days the lot or lots were on sale governs the width

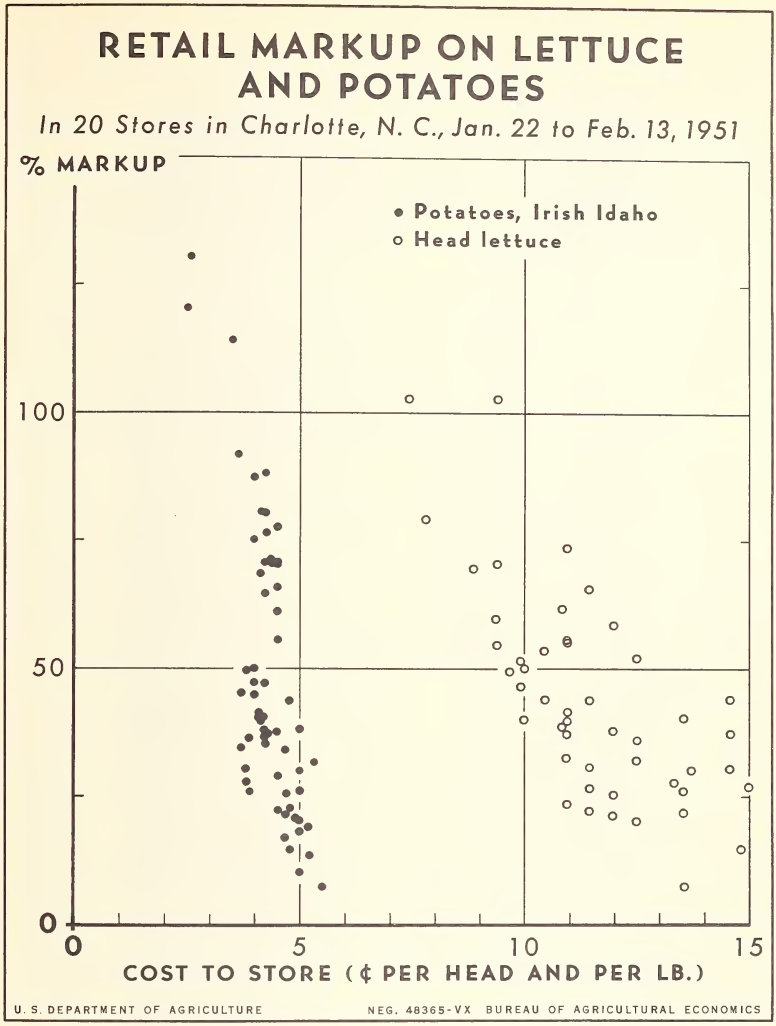
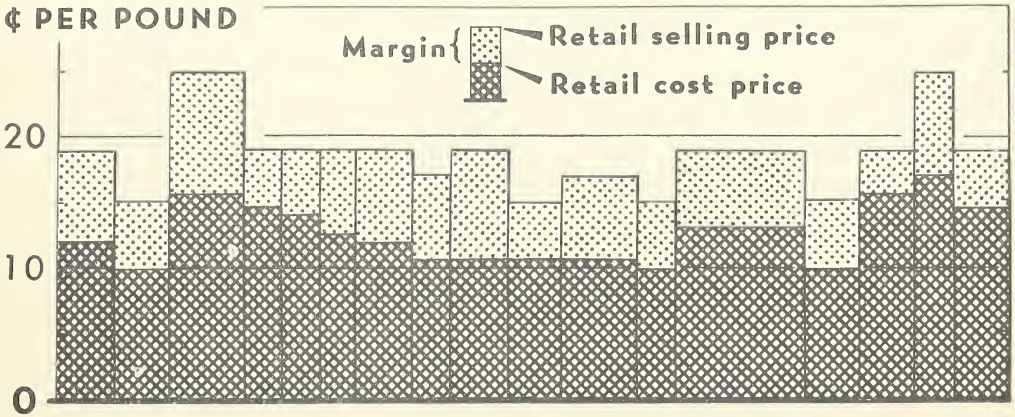

RETAIL MARKUP ON LETTUCE AND POTATOES
In 20 Stores in Charlotte, N. C., Jan. 22 to Feb. 13, 1951
% MARKUP
• Potatoes, Irish Idaho
o Head lettuce
100
50
0
0
5
10
15
COST TO STORE (¢ PER HEAD AND PER LB.)
U. S. DEPARTMENT OF AGRICULTURE
NEG. 48365-VX BUREAU OF AGRICULTURAL ECONOMICS

Figure 2

GROSS RETAIL MARGIN ON GIVEN LOTS OF SIZE 48 CALIF.-ARIZ. HEAD LETTUCE

In Store "2" in Charlotte, N.C., Jan. 22 - Apr. 21, 1951



EACH BAR REPRESENTS AN INDIVIDUAL LOT OR LOTS ON SALE IN A RETAIL STORE WITH A COMMON SELLING PRICE AND COST PRICE PER HEAD. THE NUMBER OF DAYS THE LOT OR LOTS WERE ON SALE GOVERNS THE WIDTH OF EACH BAR

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Figure 3

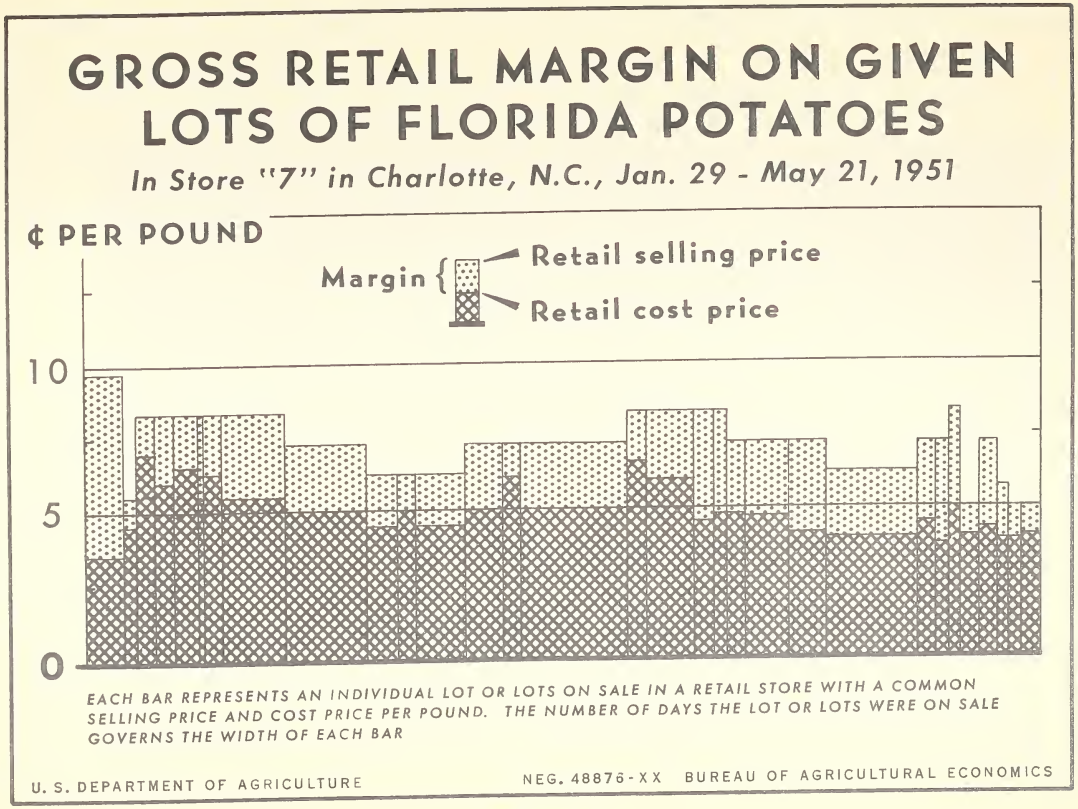

Figure 4

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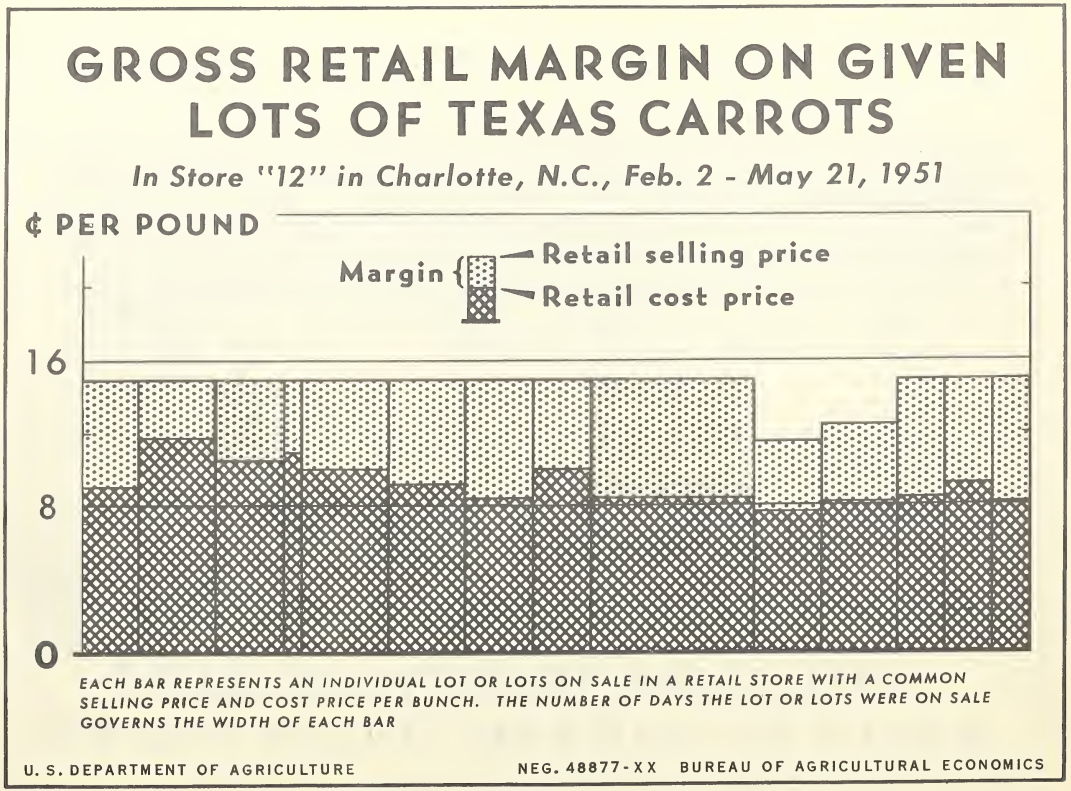
GROSS RETAIL MARGIN ON GIVEN LOTS OF TEXAS CARROTS
In Store "12" in Charlotte, N.C., Feb. 2 - May 21, 1951
¢ PER POUND
Margin
Retail selling price
Retail cost price
16
8
0
EACH BAR REPRESENTS AN INDIVIDUAL LOT OR LOTS ON SALE IN A RETAIL STORE WITH A COMMON SELLING PRICE AND COST PRICE PER BUNCH. THE NUMBER OF DAYS THE LOT OR LOTS WERE ON SALE GOVERNS THE WIDTH OF EACH BAR
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Figure 5

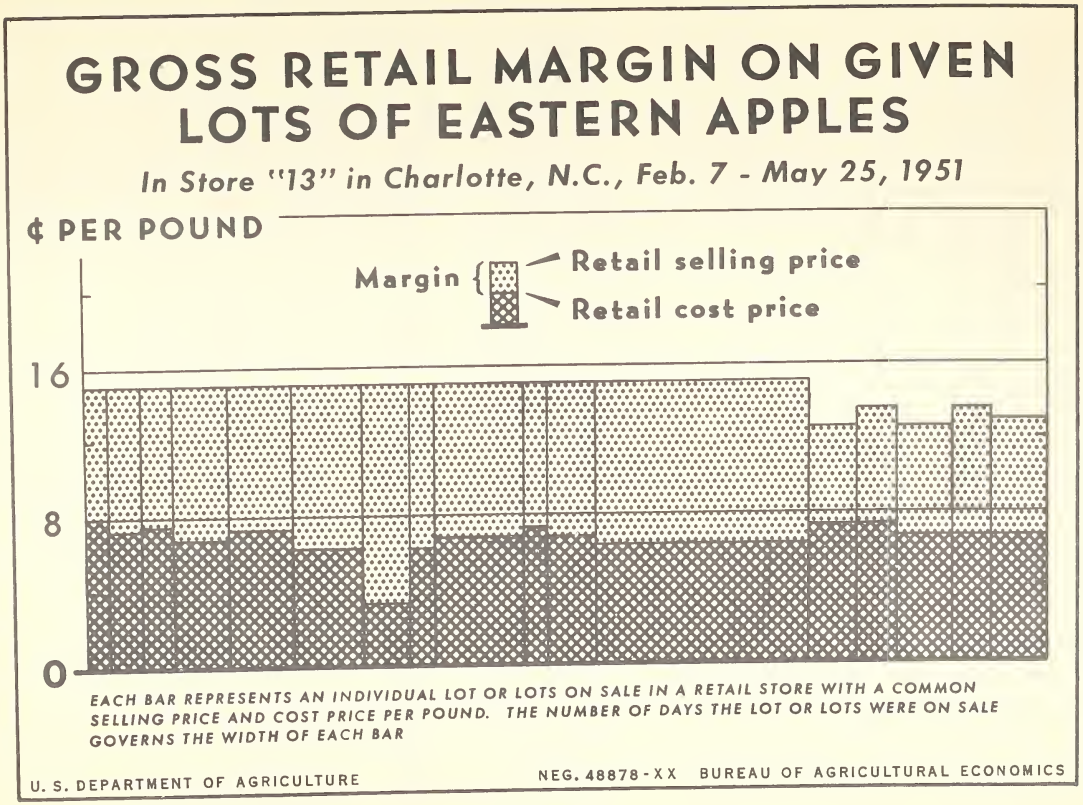
GROSS RETAIL MARGIN ON GIVEN LOTS OF EASTERN APPLES
In Store "13" in Charlotte, N.C., Feb. 7 - May 25, 1951
¢ PER POUND
Margin
Retail selling price
Retail cost price
16
8
0
EACH BAR REPRESENTS AN INDIVIDUAL LOT OR LOTS ON SALE IN A RETAIL STORE WITH A COMMON SELLING PRICE AND COST PRICE PER POUND. THE NUMBER OF DAYS THE LOT OR LOTS WERE ON SALE GOVERNS THE WIDTH OF EACH BAR
U. S. DEPARTMENT OF AGRICULTURE
NEG. 48878-XX BUREAU OF AGRICULTURAL ECONOMICS

Figure 6

of each bar). This relationship existed, even though the average margins taken by the larger stores in group I in most cases were less than the average margin taken by the smaller stores. Lack of a consistent retail margin found in the Charlotte stores arose from the fact that retailers did not immediately reflect changes in price. Many of the retail stores tended to maintain relatively inflexible selling prices. A similar situation was found in Pittsburgh for apples 7/, potatoes, cabbage, and peaches 8/, and in Cleveland for lettuce. 9/

Whether Charlotte consumers would have bought more fruits and vegetables if retail prices had been permitted to follow wholesale prices is not known. The only known effect of holding retail prices relatively steady is the way in which its shows up in the marketing margins. This suggests the need for investigating the effects such pricing practices have upon relative sales and profits for the various commodities, compared with the effects of a more flexible selling price based upon a fixed percentage or absolute margin. In turn, these findings would need to be evaluated in light of their effects upon over-all store profits and sales.

Retail Margins by Size Groups of Stores

No consistency was found in the retail margins taken for specific commodities within size groups of stores. Retail stores varied considerably in their patterns of pricing fresh produce, whether the margins were expressed as a percentage or in dollars-and-cents. This is shown according to groups of stores in Appendix tables 13 and 14. Neither was any consistency apparent in the average margins among commodities from one group of stores to another. This is shown in table 3.

Can these apparent inconsistencies be explained on the basis of the relative differences in volume of sales, spoilage, and operating costs? This question is discussed in the four following sections.

7/ Bitting, H. W., and Badger, Henry T. Marketing Charges for Apples Sold in Pittsburgh, December 1949-May 1950. U.S. Dept. Agr., Agr. Inform. Bul. 47, April 1952. pp. 23, 24.

8/ Lee, Wayne A. Marketing Margins for Selected Fresh Fruits and Vegetables Sold in Pittsburgh, July 1950-January 1951. Progress Report No. 87. Penn State College, September 1952.

9/ Badger, Henry T. Marketing Charges for Head Lettuce Sold in Cleveland, February-June 1950, U.S. Dept. Agr. Marketing Res. Rept. 6, June 1952. 24 pp.

Table 3. - Retail margins for the 10 produce items by groups of stores, Charlotte, N. C., January 22-May 19, 1951

Commodity	Retail margin by store group 1/			
	I	II	III	IV
	Percent	Percent	Percent	Percent
Sweetpotatoes	31.9	35.0	24.5	41.2
Apples	31.0	35.8	30.6	29.5
Onions	30.3	36.8	31.8	38.4
Potatoes	27.7	28.7	29.2	28.4
Grapefruit	26.2	27.8	24.6	21.2
Oranges	25.2	31.1	25.9	26.0
Tomatoes	25.1	36.2	27.3	32.6
Cabbage	24.6	36.0	30.1	32.8
Lettuce	23.1	27.8	22.9	17.7
Carrots	23.1	32.5	29.2	24.0

1/ Retail margin is expressed as a percentage of retail selling price.

Retail Margin and Sales

Apparently no definite relationship exists between retail margins and volume of sales, although it might be expected that a smaller retail margin would be taken on those commodities sold in larger volume. This lack of relationship between retail margins and volume of sales can be observed in table 4. This table shows the relative percentage of sales for each of the 10 commodities and the retail margin by groups of stores.

Potatoes and tomatoes were the two high-volume items in terms of total value of sales. Onions and carrots were the low-volume items. 10/ Carrots had a lower retail margin than potatoes or tomatoes, while the retail margin for onions was higher than the retail margins for those two products. The lack of definite relationship between total sales and size of retail margin for individual commodities held for all four groups of stores.

10/ As no standard measure was applicable to all items on a physical basis-some were sold by the pound, by individual units, per head, per bunch, and per each - the comparison had to be made on the basis of total value of sales (price times quantity sold). Sales of individual items in the 20 sample stores from January 22-May 19, 1951, were as follows:

Potatoes	394,158 lbs.	Carrots	43,037 bunches and 690 bags
Sweetpotatoes	74,510 lbs.	Apples	106,513 lbs. and 24,539 individual apples
Tomatoes	83,830 lbs.	Oranges	19,984 doz. and 98,252 lbs.
Onions	54,147 lbs.	Grapefruit	8,998 doz.
Lettuce	94,418 heads	Cabbage	100,655 lbs.

Table 4. - Relative sales and retail margins for the 10 produce items by groups of stores, Charlotte, N. C., January 22-May 19, 1951

Commodity	Store group 1/							
	I		II		III		IV	
	Relative sales 2/	Retail margin 3/	Relative sales 2/	Retail margin 3/	Relative sales 2/	Retail margin 3/	Relative sales 2/	Retail margin 3/
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Perce
Potatoes	18.4	27.7	13.1	28.7	19.0	29.2	17.9	28.
Tomatoes	17.6	25.1	19.2	36.2	19.9	27.3	15.3	32.
Oranges	12.2	25.2	13.6	31.1	9.1	25.9	10.6	26.
Lettuce	11.9	23.1	13.4	27.8	12.1	22.9	10.5	17.
Apples	11.1	31.0	14.4	35.8	13.6	30.6	13.9	29.
Cabbage	7.4	24.6	6.1	36.0	8.7	30.1	10.3	32.
Grapefruit	7.3	26.2	7.7	27.8	4.0	24.6	6.1	21.
Sweetpotatoes	6.1	31.9	4.2	35.0	6.5	24.5	6.7	41.
Carrots	4.3	23.1	4.6	32.5	3.5	29.2	3.0	24.
Onions	3.7	30.3	3.7	36.8	3.6	31.8	5.7	38.

1/ Stores were grouped according to dollar volume of sales during 1950. Group I represents those stores having more than $300,000; Group II $150,000-$299,999; Group III $100,000-$149,999; Group IV under $100,000.

2/ Relative sales represent the relative dollar sales of each commodity expresse as a percentage of the total sales for the 10 commodities.

3/ Retail margin is expressed as a percentage of retail selling price.

Retail Margins and Spoilage

Even though spoilage cannot be used to explain the differences in retail margi among the 10 commodities, apparently it might be expected to influence retail margi However, when considered separately or in combination with total sales, the amount of spoilage did not explain the variation in the relative margins taken by these stores for the 10 commodities (table 5). For example, lettuce had a lower retail margin than potatoes while sales of potatoes exceeded those of lettuce. Also, potat had less spoilage than lettuce. Similarly, retail margins on apples exceeded the margin on oranges while sales of apples were greater and spoilage was less.

Retail Margins and Operating Costs

Even though some produce items require more handling than others, differences in retail margins cannot be explained by differences in operating costs for these items. Table 6 shows the lack of relationship between operating costs and retail margins.

Table 5. - Spoilage and retail margins for the 10 produce items by groups of stores, Charlotte, N. C., January 22-May 19, 1951

Commodity	Store group 1/							
	I		II		III		IV	
	Spoilage 2/	Retail margin 3/	Spoilage 2/	Retail margin 3/	Spoilage 2/	Retail margin 3/	Spoilage 2/	Retail margin 3/
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
bbage	6.7	24.6	10.3	36.0	10.3	30.1	14.1	32.8
ttuce	4.9	23.1	5.5	27.8	5.5	22.9	11.8	17.7
matoes	4.7	25.1	5.9	36.0	5.9	27.3	3.1	32.6
ions	4.2	30.3	5.7	36.8	5.7	31.8	7.9	38.4
apefruit	3.5	26.2	5.3	27.8	5.3	24.6	6.2	21.2
ples	3.3	31.0	4.7	35.8	4.7	30.6	8.6	29.5
eetpotatoes	3.1	31.9	7.4	35.0	7.4	24.5	8.3	41.2
anges	3.1	25.2	3.3	31.1	3.3	25.9	4.4	26.0
rrots	2.8	23.1	1.3	32.5	1.3	29.2	8.6	24.0
tatoes	1.4	27.7	2.5	28.7	2.5	29.2	8.8	28.4

1/ Stores were grouped according to dollar volume of sales during 1950. Group I presents those stores having more than $300,000; Group II $150,000-$299,999; roup III $100,000-$149,999; Group IV under $100,000.

2/ Spoilage is expressed as a percentage of the physical units originally rchased by the retail stores.

3/ Retail margin is expressed as a percentage of retail selling price.

Certain items appeared to carry the expense of handling other items. In the arge stores (group I) sweetpotatoes and apples had higher margins than appeared o be justified by their share of operating costs, whereas onions had a low margin n relation to their operating costs. In group II stores, the margins on tomatoes nd apples appeared to be high and the margin on onions low in relation to their perating costs. In group III stores, margins on cabbage, potatoes, and apples eemed high in comparison with that on onions. In the small stores (group IV) he margin on sweetpotatoes appeared high, whereas the margins on carrots, oranges, ettuce, and grapefruit seemed low.

Variation in Retail Margin Explained by Operating Costs, Spoilage, and Sales Volume

Neither operating costs, nor spoilage, nor volume of sales - considered separately - served to explain the differences in retail margins among the 10 commodities. In order to find out whether these factors in combination would give this explanation, it was necessary to run a multiple correlation between retail margin and these three factors. As it was possible that the relationships might

Table 6. - Retail margin on 10 commodities ranked according to operating cost, by store groups, Charlotte, N. C., January 22-May 19, 1951

Store group 1/							
I		II		III		IV	
Commodity 2/	Retail margin 3/	Commodity 2/	Retail margin 3/	Commodity 2/	Retail margin 3/	Commodity 2/	Retail margin 3/
	Percent		Percent		Percent		Percent
Onions	30.3	Onions	36.8	Onions	31.8	Carrots	24.0
Grapefruit	26.2	Sweetpotatoes	35.0	Oranges	25.9	Oranges	26.0
Carrots	23.1	Oranges	31.1	Grapefruit	24.6	Grapefruit	21.2
Apples	31.0	Potatoes	28.7	Carrots	29.2	Lettuce	17.7
Oranges	25.2	Carrots	32.5	Apples	30.6	Onions	38.4
Potatoes	27.7	Cabbage	36.0	Sweetpotatoes	24.5	Potatoes	28.4
Sweetpotatoes	31.9	Apples	35.8	Lettuce	22.9	Cabbage	32.8
Cabbage	24.6	Grapefruit	27.8	Potatoes	29.2	Tomatoes	32.6
Lettuce	23.1	Lettuce	27.8	Cabbage	30.1	Apples	29.5
Tomatoes	25.1	Tomatoes	36.2	Tomatoes	27.3	Sweetpotatoes	41.2

1/ Five stores in each group: Average sales for group I were $300,000-$1,600,000; group II, $150,000-$299,999; Group III, $75,000-$149,999; group IV, $30,000-$74,000.

2/ The commodities are arranged from high to low on the basis of operating costs as a percentage of total sales value. Operating costs as determined by Alderson and Sessions include (1) cost of space occupancy, (2) cost of labor, (3) advertising and promotional cost, (4) administrative costs, (5) other selling costs, and (6) general overhead costs. A definition of these costs and the method of allocation is described in the Appendix under the heading "Operating Expenses and Methods of Allocation."

3/ Retail margin represents the difference between the price paid and the price received for the goods sold, expressed as a percentage of retail selling price. No allowance has been made for spoilage.

vary among sizes of stores, a multiple correlation was run separately for each of the four size groups. When costs of handling, spoilage, and volume of sales were considered in combination, 15 to 36 percent of the variation in retail margins among the 10 commodities for the four size groups of stores could be explained. In other words, differences in total sales, spoilage, and operating costs accounted for little, if any, of the differences in margins. These three factors accounted for 15 percent of the variation in retail margins for group III stores, and for 36 percent of the variation for groups II and IV stores. For group I stores they accounted for only 19 percent of the variation in margins.

Eastern apples, for example, carried an average retail margin of 31 percent. Oranges averaged 25 percent and lettuce and carrots 23 percent. These differences in margins were unrelated to the difference in volume of sales, spoilage, and operating costs.

From the pricing practices observed in Charlotte, retailers apparently look upon their store operations as a unit and give little consideration to the effect that margins of individual commodities may have upon the relative sales and profits of particular items.

LABOR COSTS

The cost of labor usually accounted for more than 60 percent of the operating expenses in the produce departments in the sample stores. Approximately 56 percent of the total labor cost was incurred before the consumer selected the produce. In general, as total sales of grocery, produce, and meats increased, labor costs made up a decreasing percentage of total produce operating expenses.

The largest stores made better use of their labor in terms of pounds sold per man-hour. They also paid higher wage rates. However, the higher wage rates were more than offset by greater productivity of labor.

In terms of dollar sales per dollar of labor cost, there were no significant differences between the four size-groups of stores. The advantages which the largest stores (more than $300,000 of sales) enjoyed in terms of greater physical productivity of labor were offset by the lower selling prices per pound of produce sold.

Measurement of Labor Productivity

Productivity of labor may be measured in both physical and dollar terms. Output of labor was calculated in terms of pounds sold per dollar of labor cost and pounds sold per man-hour. Expressed on a dollar basis, the same relationship may be shown as dollar sales per dollar of labor cost and dollar sales per man-hour. These data are shown by size groups of stores in table 7 for output expressed in terms of pounds sold per dollar of labor cost and per man-hour.

Table 7. - Labor productivity in terms of pounds of produce sold per man-hour and dollar cost of labor by size groups of stores, Charlotte, N. C., January 22-May 19, 1951

Store group 1/	Stores	Pounds sold per	
		Man-hour	Dollar of labor cost
	Number	Pounds	Pounds
I	5	63	56
II	5	27	26
III	5	28	31
IV	5	21	25
Average		48	45

1/ Stores were grouped according to dollar volume of sales during 1950. Group I represents those stores having more than $300,000; Group II $150,000-$299,999; Group III $100,000-$149,999; Group IV under $100,000.

When productivity of labor is measured in physical terms the five largest stores are apparently the more efficient. The five largest stores sold an average of 56 pounds of produce per dollar of labor cost. This average drops to 26 pounds for the next group of stores, and varies erratically thereafter. The highest of the four store groups is a little more than twice as great as the lowest. The quantity sold per man-hour dropped from 63 pounds per man-hour in the group of largest stores to 27 and 28 pounds for the next two groups, followed by another drop to 21 pounds for the smallest group of stores. In this case, productivity falls more sharply and consistently with size of store. Labor productivity for the highest group of stores was three times as great as for the lowest group.

When measured in terms of dollar sales rather than pounds sold, differences in productivity between the larger and the smaller stores are less apparent (table 8). Dollar sales per man-hour are smaller in small stores than in larger ones, but the rate of decline by store-size is less than was noted for pounds sold per man-hour (table 7). There is no consistent pattern in dollar sales per dollar of labor cost between the larger and the smaller stores. The apparent inconsistency between the physical and dollar measurements of productivity of labor arises from the fact that the larger stores pay a higher hourly wage rate, as shown in table 9.

Table 8. - Dollar sales per dollar of labor cost by size groups of stores, Charlotte, N.C., January 22-May 19, 1951

Store group 1/	Stores	Dollar sales per Man-hour	Dollar sales per Dollar of labor cost
	Number	Dollars	Dollars
I	5	12	10
II	5	10	9
III	5	10	11
IV	5	6	8
Average		11	10

1/ Stores were grouped according to dollar volume of sales during 1950. Group I represents those stores having more than $300,000; Group II $150,000-$299,999; Group III $100,000-$149,999; Group IV under $100,000.

Table 9. - Labor cost per man-hour by groups of stores, Charlotte, N.C., January 22-May 19, 1951

Store size	Stores	Labor cost per man-hour
	Number	Dollars
Over - $300,000	5	1.15
$150,000 - 299,999	5	1.05
100,000 - 149,999	5	.90
Under - 100,000	5	.85

The advantage in pounds sold per man-hour realized by the larger stores is offset to some extent by the higher hourly compensation paid to labor in these stores. As a result, their advantage does not appear so great when productivity is computed in terms of pounds sold per dollar of labor cost (table 7). This advantage is completely removed when output is expressed in dollars and related to cost of labor expressed in dollars (table 8). This is because the larger stores sold their produce at a lower price per pound. They may have done so because of either or both of two factors: (1) They may have sold their produce for lower prices, (2) they may have sold a greater proportion of the heavy-weight, low-priced produce (potatoes, for example).

Functional Shares of Cost of Labor

Three functions represent approximately two-thirds of the total wage and salary payments that can be allocated to produce. They are: (1) Receiving and arranging displays; (2) maintaining displays; and (3) check-out and delivery. For the 20 stores taken as a group, these functions account for 23, 23, and 21 percent respectively of the produce wage and salary payments. Forty-six percent of the cost of labor arises from the physical handling of produce before selection by the customer. An additional 10 percent was chargeable to the buying function of the store. Approximately 56 percent of the cost of labor was incurred before the consumer selected the produce.

The functional breakdown of produce wage and salary payments for the 20 stores taken as a group may be summarized as follows:

Function	Percentage of total wage and salary payments in the produce departments
	Percent
Buying	10
Receiving and arranging displays	23
Maintaining displays	23
Selling	7
Check-out and delivery	21
Clean-up	9
Other	7
Total	100

Individual stores deviate widely from this overall distribution. For example, it has been observed that buying averages 10 percent of the total cost of labor. Yet, for three stores, two of which order from a central warehouse, the cost of buying is less than 6 percent of the total wage and salary payments allocated to produce; at the other extreme, for two stores, the cost of buying is about 25 percent of the total wage and salary payments in the produce departments. The remaining stores are spread out between these two extremes (Appendix table 15).

Other functions also are characterized by substantial fluctuations from the 20-store figures. Receiving and arranging displays ranged from a high of 29 percent to a low of 6 percent. The largest group of stores consistently spent relatively more time in receiving and arranging displays than the other groups. The greatest variation among stores was found in the group of smallest stores.

Maintaining displays, the cost of which constitutes 23 percent of the 20-store cost of labor in produce departments, varies between nearly a third of the cost of labor in one of the largest stores studied to only about a

fortieth of the total in one of the smallest. In a general way, and with exceptions, the percentage of the cost of labor that is devoted to maintenance of displays varies with size of store. The larger the store, the greater the share of the cost of labor devoted to maintaining displays.

The selling function, which in a supermarket is restricted, accounts for only a 7-percent share of the labor cost of the entire group of stores. The costs of labor involved in weighing customers' selections, assisting customers, and assembling orders, for individual stores range downward from 17 percent for the smallest store to about 2 percent for one of the larger stores and to zero for a store near the center of the volume ranking. No general relationship is apparent between store volume and the selling function's share of the total cost of produce labor.

The range for clean-up fluctuates between 5 and 20 percent of the total cost of produce labor, evidently without relation to size of store. Miscellaneous functions account for between 17 and 0.1 percent of the produce department's labor cost.

The "check-out and delivery" function represents 21 percent of the produce labor cost of the group as a whole. Variations for this post-selection function, which is carried on outside the produce department proper, are between 50 and 10 percent - a wide range. Although the progression is not smooth, the percentage tends to rise as volume of business of the store becomes smaller. This may reflect a more intensive and efficient use of check-out and delivery labor in the larger stores, so that there is little or no idle time, whereas in the smaller stores the check-out counters may be handled by the proprietors, who use the occasion to maintain the good will of their customers. Also, in the case of smaller stores with the proprietors at the registers, the hourly compensation rate would be higher than in the case of employees of the larger stores. Such an explanation would not be especially meaningful for the produce department; it would apply, however, to all departments.

APPENDIX

Definitions of Functional Shares of Labor Cost

Buying - includes talking with wholesalers, placing orders, remaining familiar with the price and supply situation.

Receiving and arranging displays - includes receiving merchandise, building it into fresh displays, and such associated tasks as uncrating, washing, and trimming.

Maintaining displays - includes keeping displays filled, and culling out imperfect or spoiled merchandise.

Selling - includes weighing customer's selections, assisting customers, and assembling orders.

Checking out and delivery - includes checking-out of merchandise and its delivery to customers. This function is carried on outside the produce department.

Clean-up - includes cleaning the produce department.

Other - includes various general functions such as over-all supervision, store planning, and record keeping.

Operating Expenses and Method of Allocation

Broad classifications of operating expenses were created as combinations of various accounting expense records. These were:

Space occupancy cost included specifically the following items: Rent, or appropriate depreciation for owned building, light, heat, power, and necessary repairs and maintenance.

Labor cost included all moneys paid employees, including part-time employees, and an appropriate amount credited actual owners of the business when exact "draws" or salaries were not paid. This latter amount was based upon what would have been a comparable salary to perform the functions that the owners performed if they had found it necessary to hire someone to do the job.

Advertising and promotional cost included newspaper advertising costs of several sample stores and handbill and other promotional costs for some of the others. Only two of the sample stores regularly used radio and television advertising. Others used it for special purposes; openings of new stores were the more important of these.

Administrative costs were grouped to include office expense such as cost of supplies and equipment, telephone expense, and certain management labor costs not allocated directly in the distribution of cost of labor.

Other selling costs such as wrapping and packaging materials, delivery and depreciation of equipment, were grouped.

General overhead costs included taxes (other than real estate), insurance, interest (except mortgages), license fees, reserve for bad debts, and other such expenses.

These classifications were examined to determine which costs could be allocated directly to a department. Whenever possible this departmentalization was used to delineate the area for further necessary computations. These computations lead to the functional allocation of costs. This functional allocation is resorted to only when there is no clearly defined departmental charge.

Establishing Functional Cost Groups

Costs that could not be directly allocated were grouped according to the following functional groups and then allotted to the department on the basis of the factor used for the function:

Within space occupancy cost	
1. Check-out area	Average numbers of items handled from each department
2. Office and other utility areas	On the basis of all allocations of cost
Within labor cost	
1. Check-out	Average number of items handled from each department
2. Clean-up	On square feet occupied by department
3. Delivery	On the basis of average number of items handled from each department
4. Office clerical	On the basis of percentage of sales
5. Supervision	On the basis of all other allocations of cost
Within advertising cost and promotion	
1. Newspaper advertising	Directly from tear-sheet measurement per department
2. Other promotional	On the basis of percentage of sales per department
Administrative costs	On basis of all other cost allocations

Within other selling costs

1. Wrapping and packaging supplies	On basis of average costs per departme
2. Depreciation on store equipment	On basis of average cost of equipment per department
3. Depreciation and cost of operating delivery equipment	On basis of average number of items handled from each department

Within general overhead costs

1. Insurance	By type of policy
2. Taxes	By dollar volume of sales per departme
3. Interest	By average capital investment per department
4. Credit costs	By dollar volume of credit sales per department
5. Social security and unemployment insurance	By total labor cost allocation
6. License fees	By dollar volume of sales per department

Table 10. - Sales per square foot [illegible]

Stores	Sales per square foot of display space									
	Potatoes	Sweet-potatoes	Tomatoes	Onions	Lettuce	Carrots	Apples	Oranges	Grape-fruit	Cabbage
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Group I										
A	90.76	132.22	286.76	39.23	373.38	186.29	75.94	124.17	96.97	154.26
B	49.54	93.56	199.02	18.26	154.78	72.83	47.13	33.80	27.32	161.62
C	31.56	91.85	157.54	18.26	151.52	41.51	62.48	53.22	43.78	70.00
D	30.79	33.05	258.29	48.40	145.68	29.97	58.57	79.51	55.05	43.79
E	60.94	49.30	172.72	51.94	76.10	41.33	34.93	28.01	20.45	51.88
Average	52.72	80.00	214.87	35.22	180.29	74.39	55.81	63.74	48.71	96.31
Group II										
F	18.34	34.22	194.75	11.66	254.20	73.88	24.93	77.89	46.74	25.66
G	26.33	26.27	90.62	24.54	122.20	34.00	34.68	54.18	26.04	80.78
H	44.96	51.07	380.60	53.10	161.37	104.88	207.50	89.91	172.29	44.43
J	32.66	23.60	118.86	27.65	128.75	48.51	212.16	254.55	135.17	62.13
K	12.21	31.28	170.26	12.98	162.67	209.21	31.52	93.76	53.31	61.66
Average	26.90	33.29	191.02	25.99	165.84	94.10	102.16	114.06	86.71	54.93
Group III										
L	30.88	39.02	286.72	8.90	192.50	56.86	32.62	20.09	26.31	58.06
M	34.55	35.62	78.82	17.21	122.75	74.95	42.48	38.48	23.44	33.70
N	31.38	39.20	48.72	4.55	87.89	40.95	23.77	28.71	19.26	47.87
O	13.25	11.88	33.80	12.04	29.06	9.00	28.20	16.68	12.75	28.08
P	21.42	21.11	76.23	13.27	65.32	19.23	33.96	10.18	21.34	46.74
Average	26.30	29.37	104.86	11.19	99.50	40.20	32.20	22.83	20.62	42.89
Group IV										
Q	17.69	25.07	34.76	22.63	42.97	25.19	33.52	20.96	46.68	24.33
R	17.52	17.55	79.58	25.55	38.25	13.15	27.90	14.76	6.39	16.37
S	16.52	78.64	39.11	27.59	101.60	19.12	21.70	36.26	18.75	26.17
T	5.66	12.49	68.46	5.50	9.37	2.40	22.86	28.24	10.26	24.72
U	8.27	12.54	8.42	12.32	31.58	5.34	15.69	25.64	.00	13.72
Average	13.13	29.26	46.07	18.72	44.75	13.04	24.33	25.17	16.42	21.06

1/ Based on sales for 17 weeks: January 22 to May 19, 1951.

Table 11. - Sales for each of 10 produce items as percentage of total sales 1/

Stores	Total sales	Sales as percentage of total									
		Potatoes	Sweet-potatoes	Tomatoes	Onions	Lettuce	Carrots	Apples	Oranges	Grape-fruit	Cabbage
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Group I											
A.....	100.0	18.8	5.3	14.4	4.0	13.1	5.2	10.8	14.5	8.7	5.2
B.....	100.0	20.7	6.9	18.5	3.4	10.0	3.7	11.8	10.0	5.0	10.0
C.....	100.0	16.4	7.3	16.5	3.5	13.7	4.3	11.7	10.4	8.5	7.7
D.....	100.0	9.8	4.4	21.9	3.8	13.5	3.6	10.5	16.5	10.2	5.8
E.....	100.0	24.1	7.1	23.9	4.4	8.0	3.3	9.5	6.7	4.5	8.5
Average	100.0	18.4	6.1	17.6	3.7	11.9	4.3	11.1	12.2	7.3	7.4
Group II											
F.....	100.0	10.8	4.1	21.8	4.2	17.0	5.9	14.2	9.4	8.5	4.1
G.....	100.0	19.7	3.2	18.1	6.1	12.2	3.4	13.8	9.1	4.4	10.0
H.....	100.0	16.3	5.3	21.8	3.2	12.8	4.6	12.5	12.8	3.8	6.9
J.....	100.0	9.5	2.3	11.9	2.7	10.3	3.6	18.9	22.7	12.0	6.1
K.....	100.0	11.1	5.8	21.1	3.2	14.2	5.0	12.5	13.3	9.3	4.5
Average	100.0	13.1	4.2	19.2	3.7	13.4	4.6	14.4	13.6	7.7	6.1
Group III											
L.....	100.0	16.9	4.9	26.2	3.4	12.3	4.0	12.6	8.2	5.1	6.4
M.....	100.0	21.3	6.8	14.2	4.4	14.0	3.2	12.5	9.2	3.7	10.7
N.....	100.0	16.7	7.7	21.4	3.1	10.4	2.8	15.4	10.1	3.8	8.6
O.....	100.0	24.9	5.0	13.6	5.3	9.3	3.9	12.8	9.3	3.6	12.3
P.....	100.0	21.0	8.3	14.9	3.2	12.8	3.8	15.0	9.1	2.7	9.2
Average	100.0	19.0	6.5	19.9	3.6	12.1	3.5	13.6	9.1	4.0	8.7
Group IV											
Q.....	100.0	15.3	4.4	13.6	4.0	17.0	4.9	10.5	8.8	11.9	9.6
R.....	100.0	23.2	3.9	20.8	4.8	10.0	3.4	13.9	7.4	4.0	8.6
S.....	100.0	15.7	12.4	12.9	6.9	8.0	2.4	13.6	12.0	3.8	12.3
T.....	100.0	14.9	5.5	21.5	6.7	3.0	.3	19.4	15.8	5.7	7.2
U.....	100.0	20.4	9.8	6.2	9.0	7.5	1.3	16.7	13.9	.0	15.2
Average	100.0	17.9	6.7	15.3	5.7	10.5	3.0	13.9	10.6	6.1	10.3

Table 12. - Space allotted to each of 15 stores

Stores	Total space	Space as percentage of total									
		Potatoes	Sweet-potatoes	Tomatoes	Onions	Lettuce	Carrots	Apples	Oranges	Grape-fruit	Cabbage
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Group I											
A	100.0	24.5	4.8	5.9	12.0	4.2	3.3	16.8	13.9	10.6	4.0
B	100.0	24.8	4.4	5.5	11.1	3.9	3.0	15.0	17.7	10.9	3.7
C	100.0	29.3	4.4	5.9	10.9	5.1	5.8	10.5	11.0	10.9	6.2
D	100.0	20.8	8.6	5.5	5.1	6.1	7.8	11.8	13.5	12.1	8.7
E	100.0	21.5	7.8	7.5	4.5	5.7	4.4	14.8	13.0	11.9	8.9
Average	100.0	24.6	5.4	5.9	9.8	4.6	4.3	14.2	14.7	11.1	5.4
Group II											
F	100.0	24.9	5.1	4.8	15.3	2.8	3.4	24.1	5.1	7.7	6.8
G	100.0	31.6	5.2	8.4	10.4	4.2	4.2	16.8	7.0	7.0	5.2
H	100.0	33.5	9.5	5.3	5.5	7.3	4.0	5.5	13.1	2.0	14.3
J	100.0	26.1	8.8	9.1	8.8	7.3	6.8	8.1	8.1	8.1	8.8
K	100.0	38.4	7.9	5.2	10.4	3.7	1.0	16.9	6.0	7.4	3.1
Average	100.0	31.1	6.9	6.2	11.0	4.4	3.4	16.5	7.1	6.7	6.7
Group III											
L	100.0	22.9	5.3	3.9	16.2	2.7	3.0	16.2	17.1	8.1	4.6
M	100.0	25.7	7.9	7.5	10.5	4.7	1.8	12.3	10.0	6.5	13.1
N	100.0	15.6	5.7	12.8	20.1	3.5	2.0	19.0	10.3	5.7	5.3
O	100.0	33.3	7.5	7.2	7.8	5.7	7.8	8.0	9.8	5.1	7.8
P	100.0	25.5	10.2	5.1	6.2	5.1	5.1	11.4	23.0	3.3	5.1
Average	100.0	23.0	7.0	7.5	13.5	4.1	3.4	14.5	14.2	6.0	6.8
Group IV											
Q	100.0	24.0	4.9	11.0	4.9	11.0	5.5	8.8	11.8	7.1	11.0
R	100.0	28.4	4.8	5.6	4.0	5.6	5.6	10.7	10.7	13.4	11.2
S	100.0	26.7	4.5	9.4	7.1	2.2	3.6	17.9	9.4	5.8	13.4
T	100.0	35.9	6.0	4.3	16.7	4.3	1.7	11.7	7.7	7.7	4.0
U	100.0	31.2	9.9	9.3	9.3	3.0	3.0	13.4	6.9	.0	14.0
Average	100.0	29.4	5.9	7.8	8.1	5.6	4.1	12.1	9.4	6.9	10.7

Table 13. - Absolute margins for the 10 fresh fruits and vegetables, by total store sales, Charlotte, N. C., January 22-May 19, 1951 1/

Commodity and total store sales	Retail margin in cents										
	Less than 1.0	1.0 to 1.4	1.5 to 1.9	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 to 4.9	5.0 to 5.4	More than 5.5
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Potatoes (Idaho)											
Over $300,000	47.3	12.2	24.5	15.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0
$75,000 - 299,999	27.0	19.8	17.9	9.2	15.7	7.9	2.5	.0	.0	.0	.0
Under 75,000	28.4	23.5	28.3	11.6	2.4	4.8	1.0	.0	.0	.0	.0
Sweetpotatoes											
Over $300,000	2.8	.0	1.8	2.2	18.1	12.7	5.6	16.6	25.8	5.7	8.7
$75,000 - 299,999	5.3	4.5	13.6	13.2	28.0	10.6	4.0	7.0	6.7	3.8	3.3
Under 75,000	.0	3.2	1.9	15.9	28.7	32.8	13.4	.5	.2	.0	3.4
Tomatoes											
Over $300,000	3.2	1.0	.0	.0	.0	.0	.0	.0	.0	.0	95.8
$75,000 - 299,999	.4	.0	.4	1.6	.1	.2	.4	.7	1.4	.9	93.9
Under 75,000	2.0	.7	1.3	2.2	12.7	1.1	2.4	.2	23.4	4.6	49.4
California and Arizona carrots											
Over $300,000	9.8	3.9	5.7	22.5	20.3	10.3	12.6	7.5	5.3	2.1	.0
$75,000 - 299,999	5.6	.9	6.0	1.7	6.7	15.7	7.4	23.1	8.9	6.8	17.2
Under 75,000	7.8	4.5	4.5	16.9	6.9	8.7	23.6	6.1	2.5	.0	18.5
Onions (Yellow Globe)											
Over $300,000	5.2	.0	7.4	7.6	11.3	13.9	5.5	8.6	14.4	20.1	6.0
$75,000 - 299,999	4.5	5.3	3.3	20.2	10.9	11.2	9.6	15.2	7.4	7.5	4.9
Under 75,000	6.0	6.8	27.6	30.7	13.1	3.8	7.1	1.2	2.0	.2	1.5
Lettuce (Western)											
Over $300,000	14.4	4.6	7.1	11.2	8.0	13.1	13.9	6.2	4.8	9.1	7.6
$75,000 - 299,999	3.2	.7	4.3	4.0	7.7	8.1	9.6	13.0	7.0	8.7	33.7
Under 75,000	8.4	6.3	3.7	15.8	16.7	7.2	5.3	15.1	4.1	4.5	12.9
Cabbage (Green)											
Over $300,000	8.3	2.8	4.6	10.3	7.4	16.3	13.3	11.7	5.9	8.9	10.5
$75,000 - 299,999	6.2	5.2	9.0	11.9	9.8	12.9	9.1	6.5	5.8	3.8	19.8
Under 75,000	28.5	12.2	16.7	7.3	10.1	3.3	4.5	4.3	5.5	1.3	6.3

Continued

Table 13. - Absolute margins for the 10 fresh fruits and vegetables, by total store sales, Charlotte, N. C., January 22-May 19, 1951 1/ - Continued

Commodity and total store sales	Retail margin in cents										
	Less than 1.0	1.0 to 1.4	1.5 to 1.9	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 to 4.9	5.0 to 5.4	More than 5.5
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Eastern apples											
Over $300,000	1.2	3.6	15.3	1.9	21.7	8.2	14.9	2.1	16.4	4.1	10.6
$75,000 - 299,999	2.8	.9	3.1	8.7	10.3	6.9	10.5	12.8	7.4	11.3	25.3
Under 75,000	3.2	3.8	4.3	4.1	9.7	24.1	11.8	19.9	11.2	2.6	5.3
Oranges (Valencia)											
Over $300,000	90.9	9.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
$75,000 - 299,999	47.6	29.7	22.3	.4	.0	.0	.0	.0	.0	.0	.0
Under 75,000	86.0	12.2	.2	1.6	.0	.0	.0	.0	.0	.0	.0
Grapefruit (White Duncan)											
Over $300,000	8.6	10.3	23.4	28.2	21.1	3.9	4.5	.0	.0	.0	.0
$75,000 - 299,999	4.2	8.1	7.6	22.5	44.9	4.9	6.1	.4	1.3	.0	.0
Under 75,000	5.1	28.9	32.0	15.0	8.3	4.9	3.8	.7	1.2	.0	.1

1/ Based upon volume sold after allowance for waste and spoilage.

Table 14. - Percentage of volume sold at specified percentage margins by total store sales, Charlotte, N. C., January 22-May 19, 1951 1/

Commodity and total store sales	Gross percentage retail margin 2/										
	Less than 10	10.0 to 14.9	15.0 to 19.9	20.0 to 24.9	25.0 to 29.9	30.0 to 34.9	35.0 to 39.9	40.0 to 44.9	45.0 to 49.9	50.0 to 54.9	More than 54.9
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Potatoes (Idaho)											
Over $300,000	21.0	21.4	7.5	12.8	18.0	18.9	0.4	0.0	0.0	0.0	0.0
$75,000 - 299,999	5.1	17.6	14.2	14.2	12.7	10.5	13.9	9.4	1.8	.4	.2
Under 75,000	5.5	17.7	9.7	19.4	19.4	14.7	8.3	3.4	.9	.5	.5
Sweetpotatoes											
Over $300,000	2.8	.9	.0	2.2	6.7	18.7	5.5	22.2	27.5	3.8	10.6
$75,000 - 299,999	5.3	3.3	8.6	12.1	21.8	23.1	8.3	12.0	2.4	.7	2.4
Under 75,000	.0	1.4	1.9	9.0	20.6	50.2	10.5	2.3	1.0	.1	3.0
Tomatoes (Pounds)											
Over $300,000	4.2	.0	2.7	5.5	2.0	20.8	15.9	21.8	9.6	3.6	13.9
$75,000 - 299,999	2.5	.7	5.1	18.7	19.2	12.5	15.5	9.5	2.2	7.9	6.2
Under 75,000	4.4	5.7	19.4	11.3	21.2	4.5	12.0	9.3	5.5	1.9	4.8
California and Arizona carrots											
Over $300,000	13.7	7.5	28.3	18.7	24.4	2.1	5.3	.0	.0	.0	.0
$75,000 - 299,999	5.7	3.6	7.2	17.4	19.1	21.5	14.8	5.4	5.3	.0	.0
Under 75,000	5.8	5.0	15.7	27.3	21.1	13.0	3.6	6.0	1.5	1.0	.0
Onions (Yellow Globe)											
Over $300,000	5.2	.0	7.7	2.4	7.6	3.0	16.5	14.1	14.4	23.1	6.0
$75,000 - 299,999	4.5	.6	2.0	4.7	17.9	14.1	15.1	22.1	8.0	7.5	3.5
Under 75,000	2.6	1.1	3.6	8.2	25.7	30.4	13.8	2.0	8.3	1.3	3.0
Lettuce (Western)											
Over $300,000	17.9	19.9	15.5	13.4	14.1	11.9	5.0	2.3	.0	.0	.0
$75,000 - 299,999	3.7	5.4	11.1	11.9	22.5	13.4	17.7	11.0	3.3	.0	.0
Under 75,000	9.1	11.7	20.9	20.8	14.9	14.0	1.6	5.9	.7	.4	.0
Cabbage (Green)											
Over $300,000	8.3	4.6	3.0	5.8	10.4	13.3	13.4	14.8	14.7	8.8	2.9
$75,000 - 299,999	4.5	4.7	7.2	10.4	11.9	10.5	11.3	13.3	6.8	4.2	15.2
Under 75,000	18.7	7.1	7.3	17.7	19.9	6.6	7.0	4.4	4.7	1.6	5.0

Continued

Table 14. - Percentage of volume sold at specified percentage margins by total store sales, Charlotte, N. C., January 22-May 19, 1951 1/ - Continued

Commodity and total store sales	Gross percentage retail margin 2/										
	Less than 10	10.0 to 14.9	15.0 to 19.9	20.0 to 24.9	25.0 to 29.9	30.0 to 34.9	35.0 to 39.9	40.0 to 44.9	45.0 to 49.9	50.0 to 54.9	More than 54.9
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Eastern apples											
Over $300,000	2.8	7.5	9.7	9.0	18.4	21.3	18.5	0.0	10.6	2.2	0.0
$75,000 - 299,999	2.8	.2	4.6	13.5	12.9	18.8	15.0	13.4	8.2	4.1	6.5
Under 75,000	2.3	3.8	4.4	6.0	25.4	12.0	26.4	8.2	9.2	1.4	.9
Oranges (Valencia)											
Over $300,000	.0	.0	4.4	71.5	15.0	2.2	4.5	.0	.0	2.4	.0
$75,000 - 299,999	.2	.5	3.1	22.2	29.7	20.7	21.1	.5	2.0	.0	.0
Under 75,000	.2	.2	21.5	32.5	38.8	2.6	2.4	.2	.0	.0	1.6
Grapefruit (White Duncan)											
Over $300,000	8.6	11.2	16.5	11.7	11.6	24.6	10.2	5.6	.0	.0	.0
$75,000 - 299,999	2.1	3.2	8.4	13.5	45.7	18.5	5.2	2.4	.4	.6	.0
Under 75,000	3.9	.7	22.5	18.0	28.8	17.0	5.1	2.7	1.2	.0	.1

1/ Based upon volume sold after allowance for waste and shrinkage.
2/ Percentage margin equals realized margin* divided by sales value.

* Realized margin, as herein used, represents the difference between the price paid and the price received for the goods sold after allowing for any loss in spoilage.

Table 15. - Labor cost allocation: Percentage of total produce labor cost charged each labor function in the department in the sample stores in Charlotte, N. C. 1/

Stores	Labor functions in produce department							
	Total cost	Buying	Receiving and display	Maintaining display	Selling	Clean-up	Check-out and/or delivery	All other 2/
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Group I								
A	100.0	4.0	26.0	29.0	8.9	6.9	20.5	4.7
B	100.0	3.3	26.1	32.7	2.6	7.4	22.2	5.7
C	100.0	5.9	24.2	28.1	8.1	8.3	15.5	9.9
D	100.0	21.6	28.0	19.6	2.2	8.4	15.9	4.3
E	100.0	11.8	18.8	16.2	11.8	20.6	11.7	9.1
Group II								
F	100.0	14.3	13.5	17.9	13.7	15.4	10.7	14.5
G	100.0	16.7	19.7	8.7	8.7	11.8	19.6	14.8
H	100.0	16.1	16.1	9.7	9.7	13.2	27.2	8.0
J	100.0	14.7	14.7	13.4	13.4	7.7	29.5	6.6
K	100.0	19.1	17.0	11.4	11.4	11.4	21.9	7.8
Group III								
L	100.0	24.8	22.9	16.1	8.3	8.3	16.8	2.8
M	100.0	13.9	13.9	13.9	.0	7.0	34.0	17.3
N	100.0	3.1	29.4	13.8	3.9	16.3	25.7	7.8
O	100.0	19.2	16.7	16.7	7.0	16.7	15.5	8.2
P	100.0	9.6	8.0	8.0	6.4	16.7	49.6	1.7
Group IV								
Q	100.0	7.6	6.1	12.6	10.1	7.8	41.2	14.6
R	100.0	25.4	25.4	9.5	9.5	11.4	18.7	.1
S	100.0	20.5	20.4	7.5	7.5	7.5	34.7	1.9
T	100.0	10.0	17.5	2.5	15.0	5.0	44.1	5.9
U	100.0	17.4	17.4	8.7	17.4	10.9	19.5	8.7
Average	100.0	10.0	22.8	22.4	7.3	9.4	21.1	7.0

1/ Cost of labor covers both wages and salaries, including salaries of active proprietors and firm members or reasonable allowance therefor.

2/ Including, but not necessarily limited to, supervision, planning, keeping records of produce

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